The profiles show aircraft measurements (Cloud Droplet Probe of Liquid Water Content and droplet effective radius (black) and aircraft LIDAR measurements of cloud top height (pink)) at 20 south and 75.8-76.2 west and 71.0-73.0 west on 13th November 2008, compared to Large Eddy Model simulations with 180 and 250 cloud condensation nuclei per mg of air and no precipitation (blue).

The bar charts show the changes in the model cloud layer mean vertical Liquid Water Path (g/m²) and cloud top albedo, due to increased CCN number concentration: 50 to 100 per mg of air and 100 to 250 or 180 (no precipitation), due to entrainment of clean air at cloud tops instead of new CCNs (at 3 number concs and no precip), and due to precipitation with new CCNs or clean air entrainment (at 3 number concs). All at 20 south and 72 or 76 west, using the Morrison microphysics scheme. Also the changes from using the Morrison scheme instead of the standard bulk microphysics (at 3 number concs and no precip), and the changes due to increased CCN and due to precipitation (at 2 number concs) using the old scheme.

The profiles show the changes in model Total Water Content (blue), potential temperature (red) and vertical mixing (black), for simulations at 76 west starting with 50 CCN per mg of air with no precipitation, due to 1) increased CCN number concentrations (50 to 100 per mg of air), 2) entrainment of clean air at the cloud tops instead of new CCN, 3) precipitation, and 4) using the Morrison microphysics scheme instead of the LEM standard bulk microphysics.

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